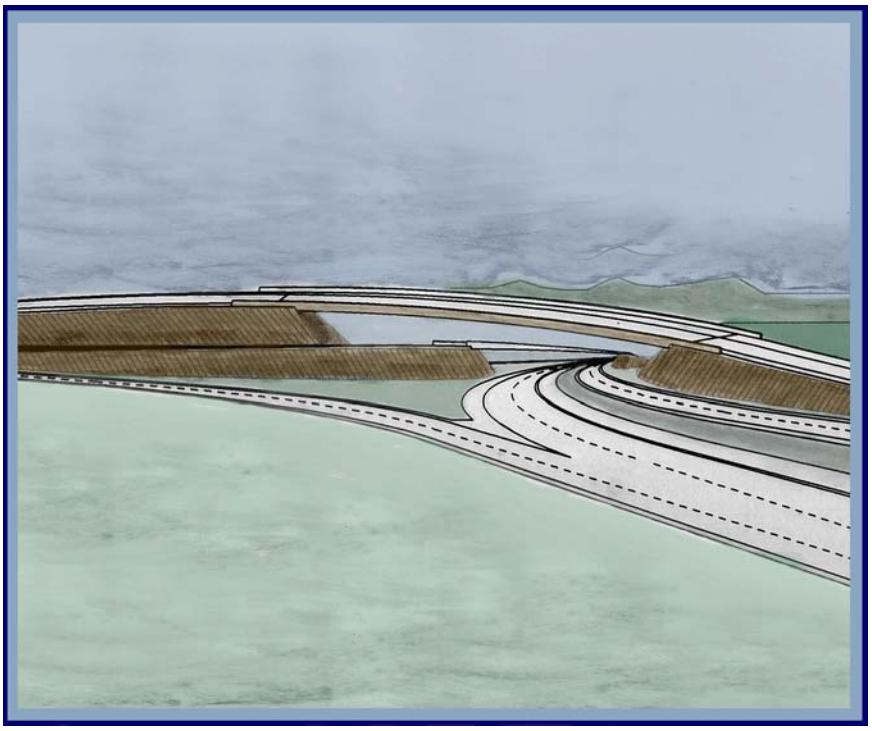
Butte 70/149/99/191
Highway Improvement Project



Final Environmental Impact Statement/Report

State Route 70/149/99/191 in Butte County, California

03-But-70/149/99/191

KP 31.0/35.6 (SR 70); 0.0/7.5 (SR 149); 33.1/39.6 (SR 99); 0.0/0.8 (SR 191)

PM 19.9/22.1; 0.0/4.6; 20.7/24.6; 0.0/0.5

3822U0, 4A8300, 0C6600

February, 2003

General Information About This Document

This document is a Final Environmental Impact Statement/Report (FEIS/FEIR) which examines the environmental impacts of proposed improvements on State Routes 70/149/99/191 in Butte County, California.

This document meets the requirements of both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) which require the preparation of an Environmental Impact Statement (EIS) and an Environmental Impact Report (EIR) when it has been determined that a project involving Federal and/or State funds may have substantial impacts on the environment. While CEQA requires that each effect having a "significant impact" be identified in an EIR, NEPA does not. In this document, references to "significant impact" are made to fulfill this requirement under CEQA, pursuant to California law. No representation as to significance made in this document represents an assessment as to the magnitude of such an impact under the requirements of Federal law. Under NEPA, no such determination need be made for a specific environmental effect.

The Draft Environmental Impact Statement/Report (DEIS/DEIR) was circulated to the public for 45 days, from June 14, 2002 to July 29, 2002. A public workshop was held on July 10, 2002. Comments received on the DEIS/DEIR, comments from the public workshop, and Caltrans/FHWA responses are contained in Appendix B. Changes made to the DEIS/DEIR text in response to comments received are contained in this FEIS/FEIR, as indicated by a vertical line in the right margin.

What happens after this?

Following review and approval of this FEIS/FEIR, Caltrans and FHWA may (1) give environmental approval to the proposed project, (2) undertake additional environmental studies, or (3) abandon the project. If the project were given environmental approval and funding were appropriated, Caltrans could design and construct all or part of the project.

For individuals with sensory disabilities, this document could be made available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Jean L. Baker, Caltrans Environmental Management M-2, P.O. Box 911, Marysville, CA 95901; (530) 741-4498 Voice, or use the California Relay Service TTY number, 1(800) 735-2929.

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TITLE VI
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The California State Department of Transportation under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, sex and national origin be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

Jeff Morales

JEFF MORALES
Director

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Upgrade State Route 149 to Four-Lane Expressway
From Route 70 North of Oroville to Route 99 South of Chico, in Butte County, California

FINAL ENVIRONMENTAL IMPACT STATEMENT / REPORT

Submitted Pursuant to: (Federal) 42 USC 4332(2)(C)
(State) Division 13, Public Resources Code

U.S. DEPARTMENT OF TRANSPORTATION
Federal Highway Administration, and
THE STATE OF CALIFORNIA
Department of Transportation

Cooperating Agencies:
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
National Marine Fisheries Service

Responsible Agency:
California Department of Fish and Game

Feb. 7, 2003
Date of Approval

Jody E. Lonergan
Director, District 3
California Department of Transportation

Feb 11, 2003
Date of Approval

Gary N. Hamby
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Abstract

The proposed action would upgrade the two-lane State Route (SR) 149 to a four-lane expressway between SR 70 and SR 99 [7.5 KM (4.6 mi)], and construct freeway-to-freeway interchanges at the SR 70 and 99 intersections. The purpose of the proposed project is to improve safety, provide concept Level of Service (LOS) C for the year 2020, and provide an inter-regional transportation facility between Oroville and Chico. The estimated project cost is $80-90 million. Three build alternatives and the no build alternative were considered in the draft document. Alternative 3, Avoid Butte County Meadowfoam (BCM) has been identified as the preferred alternative. Mitigation measures have been developed to reduce the project's impacts to wetlands, vernal pool tadpole and fairy shrimp, Central Valley Chinook salmon and steelhead trout, Valley Elderberry Longhorn Beetle, Northwestern pond turtles, Butte County Meadowfoam (indirect impacts), and Swainson's hawk foraging habitat. The project's impacts to riparian habitat, water quality, oak woodlands, visual resources, homes and businesses would also be mitigated. The project may also contribute to cumulative impacts to wetlands, vernal pool tadpole and fairy shrimp and BCM. Butte County is preparing a Habitat Conservation Plan to address impacts from this and other projects in Butte County.

Executive Summary

This Final Environmental Impact Statement/Final Environmental Impact Report (FEIS/FEIR) has been prepared to meet requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) for projects that could have adverse impacts on the environment. It summarizes detailed technical studies for the purpose of informing the public and decision-makers about the environmental effects of the proposed project, and presenting reasonable alternatives that would avoid or minimize adverse impacts.

The following summary identifies major items of importance to decision-makers regarding the proposed project. Detailed project information is presented in the body of the document.

S.1 Proposed Action

The California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) are proposing a highway improvement project on SR 149 in Butte County, California, between the cities of Chico and Oroville (Figure S-1). The proposed project would upgrade State Route (SR) 149 to a four-lane expressway and construct freeway-to-freeway interchanges at the SR 70/149 and SR 99/149 intersections. The project would improve traffic safety and reduce congestion. Improvements would include:

- Construction of two additional 3.6 meter(m) [12 foot(ft)] lanes, 18.6 m to 22 m (60 ft to 72 ft) median, 3 m (10 ft) outside shoulder and 1.5 m (5 ft) median shoulder for the full length of SR 149 (4.6 mi)
- Realignment of SR 70 between SRs 149 and 191
- Rehabilitation of the existing SR 149 roadway
- Construction of freeway-to-freeway interchanges at the existing SR 70/149 and 99/149 intersections
- Reconstruction of the SR 70/191 intersection
- Construction of driveway access roads

Figure S-1. Project Vicinity

- Construction of county roads including a portion of Shippee Road, Table Mountain Blvd. and the Book Farm Road.

The proposed project would provide a gap-closure between the four-lane SR 70 freeway to the southeast, and the four-lane SR 99 expressway to the northwest.

Other Caltrans/FHWA actions proposed in the vicinity include an interchange at the existing Ophir Rd./SR 70 intersection in Oroville with extension of the freeway for 3.2 km (2 mi) south, and widening SR 70 to a four-lane expressway/freeway from south of Marysville to Oroville ("Marysville Bypass").

S.2 Project Alternatives

As part of the integration process for projects requiring approval under NEPA and an Army Corps of Engineers (USACOE) Individual Section 404 (Clean Water Act) permit, an Alternatives Analysis was prepared by the Caltrans District 3 Environmental Branch (*Caltrans 2000*). Under this "NEPA/404 Process," sixteen roadway alternatives, two interchange options and two options for each of four driveway access roads (private residences) were examined. As a result of this analysis, three alternatives for widening SR 149, one interchange design and one option for each of the four driveway access roads were selected for consideration in the draft EIS/EIR. The remaining alternatives/design options were eliminated from further study (see Chapter 2, Section 2.1.2, "Alternatives/Options Variations Considered and Eliminated"). The following alternatives for widening SR 149 were considered:

Alternative 1 – Widen to the South

Alternative 2 – Widen to the North

Alternative 3 – Avoid Butte County Meadowfoam ("BCM," *Limnanthes floccosa californica*, a special status plant)

Other project features such as interchange design and driveway access roads would be the same for each of the alternatives.

A No Build alternative was also considered, where SR 149 would remain a two-lane highway and the SR 99/149 and 70/149 intersections would remain unchanged. Figure 1-1 (in Chapter One) shows the project location, and Chapter Two gives a detailed discussion of project alternatives.

S.2.1 Identification of Preferred Alternative

Alternative 3, Avoid Butte County Meadowfoam, has been identified as the preferred alternative under NEPA, and as the Least Environmentally Damaging Practicable Alternative (LEDPA) under Section 404(b)(1) of the Clean Water Act. The U.S. Environmental Protection Agency (USEPA), U.S. Fish & Wildlife Service (USFWS) and the U.S. Army Corps of Engineers (USACOE) have concurred with these determinations as required by the NEPA/404 Integration Memorandum (see Appendix C).

Alternative 3 was identified as the LEDPA/preferred alternative as it would avoid direct impacts to Butte County Meadowfoam, and would result in the fewest impacts to aquatic resources and special status species.

S.3 Summary of Impacts by Alternative

The following table presents a summary of impacts by alternative. Further discussion of each item in the table is presented in Chapters 3 -5.

Table S-1. Summary of Impacts by Alternative

Potential Impact	*Alternative 1 South*	*Alternative 2 North*	*Alternative 3 Avoid BCM**	*No Build Alternative*	*Minimization / Mitigation*
Farmland conversion Prime and Unique Hectares (acres)	1.2 (3)	1.2 (3)	**1.2 (3)**	0	None Required
Williamson Act land	24 parcels impacted	24 parcels impacted	**24 parcels impacted**	No impact	None Required
Business displacements	3-4	3-4	**3-4**	0	**Relocation Assistance**
Housing displacements	4	4	**4**	0	**Relocation Assistance**
Consistency with Butte County General Plan	yes	yes	**yes**	No	None Required
Noise **# of receptors approaching or exceeding Leq 67 dBA**	3	3	**3**	3	**Considered; Not reasonable**
Water quality	Temporary Construction impacts	Temporary Construction impacts	**Temporary Construction impacts**	No impact	Construction Measures
Floodplain Encroachment	Transverse, 2 locations	Transverse, 2 locations	**Transverse, 2 locations**	No impact	None Required
Air Quality	Temporary Construction impacts	Temporary Construction impacts	**Temporary Construction impacts**	No impact	Construction Measures

Potential Impact		*Alternative 1 South*	*Alternative 2 North*	*Alternative 3 Avoid BCM**	*No Build Alternative*	*Minimization / Mitigation*
Fairy & Tadpole Shrimp Habitat	**Direct impact ha (ac)**	13.59 (33.58)	12.14 (30)	**11.87 (29.33)**	0	**Preservation/ Creation of Habitat; construction measures**
	Indirect impact ha (ac)	5.66 (13.99)	6.79 (16.78)	**6.88 (17.0)**	0	
Vernal Pools & Swales	**Permanent impact** ha (ac)	2.95 (7.29)	2.71 (6.69)	**2.25 (5.56)**	0	**Creation / acquisition of habitat; construction measures**
	Temporary impact ha (ac)	0.38 (0.94)	0.59 (1.46)	**0.38 (0.94)**	0	
Total wetlands & waters area, ha (ac)		9.47 (23.4)	10.21 (25.23)	**8.95 (22.12)**	0	**Creation / acquisition of habitat**
BCM*	**direct impact** ha (ac)	0.16 (0.40)	0.01 (0.03)	**0**	0	**Preservation / acquisition of habitat; Construction measures**
	indirect impact ha (ac)	0.02 (0.04)	0.22 (0.54)	**0.21 (0.53)**	0	
Valley Elderberry Longhorn Beetle (No. Elderberry shrubs impacted, approx.)		22	17	**22**	0	**Minimize / Replacement plantings**
Oak Woodlands Ha (ac)		0.52 (1.28)	0.53 (1.31)	**0.56 (1.37)**	0	**Minimize / replacement plantings**
Riparian habitat Ha (ac)		1.06 (2.62)	0.86 (2.13)	**0.89 (2.20)**	0	**Construction measures, revegetation**
Cultural resources		No effect	Further evaluation if necessary	**No effect**	No impact	Construction measures
Potential Hazardous Waste sites		1	1	**1**	0	Construction Measures
Volume of fill imported as % of total cut & fill volume		20%-30%	20%-30%	**20%-30%**	0	N/A
Maximum projected cut and fill heights		Cut – 7m (23ft) Fill – 16m (53ft) for interchange ramps	Cut – 7m (23ft) Fill – 16m (53ft)	**Cut – 7m (23ft) Fill – 16m (53ft)**	0	N/A
Visual Impacts		Interchange ramps	Interchange ramps	**Interchange ramps**	No impact	**Revegetation, landscaping**
Cumulative impacts		Vernal pools, wetlands, BCM	Vernal pools, wetlands, BCM	**Vernal pools, wetlands, BCM**	No impact	**Cumulative Mitigation, HCP**
Growth inducement		Not substantial	Not substantial	**Not substantial**	No impact	None Required

***** *BCM = Butte County Meadowfoam*

Cumulative Impacts

Vernal pools and associated species and other wetlands are the most sensitive resources in the cumulative effects area. The distribution of vernal pools is largely

concentrated in the northern part of the cumulative effects area in Butte County (see Figure 4-1), with more fragmented and isolated pools in the southern part of the area. It would be difficult to totally avoid these resources and their associated species, as well as other wetlands, with future planned transportation projects, and it is anticipated that additional losses would occur. This would contribute to the cumulative loss of these resources in the region. Mitigation requirements currently include creation and acquisition of habitat to accomplish "no net loss." These requirements would minimize cumulative effects. As part of the NEPA/404 coordination effort, Caltrans and FHWA have agreed to investigate and pursue mitigation land for vernal pool and other wetland habitat on a scale sufficient to offset impacts of the SR 149 and other SR 70 projects. In addition, local agencies within Butte, Sutter and Yuba counties are committed to pursuing Habitat Conservation Plans to address impacts from future projects. Chapter 3 discusses growth impacts, and Chapter 4 provides a detailed discussion of the cumulative impacts associated with the proposed project and other related projects.

Growth Inducement

The proposed SR 70/149/99/191 project lies within a rural area between the communities of Oroville and Chico, and the majority of land adjacent to the project is zoned for agriculture. There are no public facilities or developments within the project limits. The proposed project would construct a limited access expressway, and no new access points are proposed. The SR 70/149 and 99/149 interchanges would be access controlled – no public access would be allowed in these areas. The only access point would be the existing SR 149/ Shippee Rd. intersection. It is expected that future growth in the county will mainly occur within the existing Chico and Oroville urbanized areas. The proposed project would accommodate planned development, but would not induce substantial population growth.

S.4 Summary of Proposed Mitigation

The following mitigation measures are based on impacts associated with Alternative 3, Avoid Butte County Meadowfoam, which has been identified as the preferred alternative/LEDPA.

Business / Housing Displacements

Property owners would receive fair market value compensation for any land or improvements acquired by the State. Caltrans and FHWA would provide relocation

assistance in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies act of 1970, as amended (Appendix I).

Noise

The proposed project would result in noise impacts to three residences that would meet or exceed the Noise Abatement Criteria (NAC) level at which abatement must be considered. This impact could be reduced with construction of a soundwall. However, soundwalls are only considered an effective mitigation measure if they also meet the "feasibility" and "reasonableness" criteria as outlined in 23 CFR 772.11 and in the Caltrans Traffic Noise Analysis Protocol. These criteria were applied and were not met, therefore no mitigation is proposed. Additionally, noise levels for the No Build alternative are predicted to be within 2 dBA of the build alternative. A difference of 2 dBA is generally not perceptible to humans and is not considered a substantial increase. The proposed project would not result in substantial noise impacts.

Project construction would comply with Caltrans Standard Specification 7-1.011 for minimizing noise impacts during construction.

Water Quality

The practices outlined in the Storm Water Management Plan (SWMP) and Statewide Storm Water Practice Guidelines would ensure that certain minimum design elements are incorporated into the project to maintain or improve water quality. The key elements are as follows:

- Minimize impervious Surfaces – The proposed project would reduce total runoff volume by reducing impervious areas where possible.

- Prevent Downstream Erosion – Drainage facilities would be designed to avoid causing or contributing to downstream erosion. Drainage outfalls, when appropriate, would discharge to suitable control measures.

- Stabilize Disturbed Soil Areas – Project design would incorporate stabilization of disturbed areas (when appropriate) with seeding, vegetative or other types of cover.

- Maximize Existing Vegetative Surfaces – Project design would limit the footprint of cuts and fills to minimize removal of existing vegetation.

The project as planned would not create a substantial increase in downstream erosion or siltation.

The Construction General Permit (Order No. 99-08-DWQ)(CA000002) would require that all storm water discharges associated with construction activities that result in soil disturbance of at least 5 acres of total land area would comply with the provisions specified in the permit, including development and implementation of an effective Storm Water Pollution Prevention Plan (SWPPP). The SWPPP is a document that addresses water pollution controls for the project during construction and would be prepared by the contractor and approved by the Resident Engineer prior to commencement of soil-disturbing activities.

Air Quality

The proposed project is included in Butte County's Regional Transportation Plan and the Federal Transportation Improvement Program. Any additional emissions from the project have been accounted for in these plans. The project would not create an impact to ozone levels in the area and would result in improved traffic flow, which would lower CO emissions. In addition, the project would not contribute to further degradation of the PM-10 air quality in the area (Section 3.4).

If final project design determines that any structures would be disturbed or demolished for construction of the project, trained inspectors would be hired to determine the presence/absence of asbestos and/or lead-based paint. Asbestos can pose a health risk if the fibers become airborne during removal and are inhaled. Dust and paint chips from lead-based paint can pose a health risk if they are inhaled or swallowed. If any structures were found to contain these substances, registered asbestos and/or lead abatement contractors would handle debris removal and disposal according to requirements set forth by the California Occupational Safety and Health Administration (Cal-OSHA) and the Butte County Air Quality Management District.

The Caltrans Standard Specifications are expected to effectively reduce and control emission impacts during construction. The provisions of Section 7-1.01F, Air Pollution Control, require the contractor to comply with the local jurisdiction's rules, regulations, ordinances, and statutes.

Wetlands

Vernal Pools and Swales

Mitigation for permanent impacts to 2.25 ha (5.56 ac) of vernal pools and swales would be covered by the mitigation for impacts to vernal pool fairy shrimp/tadpole shrimp habitat (see pg. S-11). Mitigation for temporary impacts to 0.38 ha (0.94 ac) would consist of restoring the impacted area on site at a ratio to equal "no net loss" of habitat.

Freshwater Marsh

Permanent impacts to 2.7 ha (6.7 ac) of the freshwater marsh area near the SR 70/149 intersection ("beaver pond") would be mitigated at a 1.5:1 ratio on site by creating approximately 4.05 ha (10.0 ac) of habitat adjacent to the existing marsh. Mitigation for temporary impacts would consist of restoring the impacted area through revegetation.

Mixed Riparian

Mitigation for permanent impacts to 0.97 ha (2.37 ac) of drainage ditches and upland "beaver pond" areas would consist of replacing ditches in-kind and vegetating creek crossings and the created marsh habitat at a 1.5:1 ratio for a total of 1.46 ha (3.56 ac). Mitigation for temporary impacts would consist of revegetation of the impacted areas with native species.

Other Wetlands

Mitigation for permanent impacts to 0.47 ha (1.16 ac) of other wetlands, such as pastureland, would be out-of-kind at a 1.5:1 ratio for a total of 0.71 ha (1.74 ac). This would be incorporated with mitigation for mixed riparian, freshwater marsh and vernal pool/swale impacts. Temporary impacts would be mitigated through restoration and revegetation of impacted areas.

Roadway Drainages

Mitigation for impacts to 1.17 ha (2.89 ac) of roadway drainages would consist of replacing ditches on-site, in-kind.

Jurisdictional Non-Wetland Waters

Mitigation for impacts to 1.10 ha (2.72 ac) of non-wetland riparian and un-vegetated channel below the ordinary high water mark would be out-of-kind through increasing the function of adjacent riparian habitat at Little Dry, Clear and Gold Run Creeks. The mitigation would be at a 1.2:1 ratio for a total of 1.32 ha (3.27 ac).

Oak Woodlands/Oak Specimen Trees

Permanent impacts to 0.55 ha (1.37 ac) of oak woodlands and 29 specimen trees would be mitigated through replacement planting on site. CDFG has reviewed the oak mitigation plan. Oak trees to be avoided during construction would be identified on project plans as Environmentally Sensitive Areas (ESAs) and marked in the field by staking or fencing the tree canopies. Estimated cost for this mitigation is currently being assessed.

Hazardous Waste - If any structures that would be disturbed during construction were found to contain asbestos and/or lead-based paint, a certified contractor would handle debris removal and disposal. If final design determines that construction would disturb a former fuel underground storage tank site, soil in the area of disturbance would be tested prior to construction. If necessary, contaminated soil would be removed and disposed of by a registered contractor.

Visual Impacts

Slopes along the interchange ramps would be constructed at a 2:1 slope or flatter when possible to promote blending with surrounding landscape. The slopes would be planted with native grasses, trees and shrubs. Revegetation with native species would occur in disturbed areas throughout the project area.

Cumulative Impacts

Proposed mitigation would reduce direct and indirect project impacts to less than significant levels (CEQA). Mitigation would also minimize cumulative impacts to endangered vernal pool shrimp species, Butte County Meadowfoam and wetlands.

S.4.1 Summary of Endangered Species Consultation and Mitigation

Caltrans and FHWA have completed formal Section 7 consultation with the USFWS and National Marine Fisheries Service (NMFS) in accordance with the Federal Endangered Species Act (ESA) of 1973, as amended for the proposed SR

70/149/99/191 Highway Improvement Project in Butte County. In compliance with the California Endangered Species Act (CESA), Caltrans has consulted with the California Department of Fish and Game.

USFWS

The USFWS Biological Opinion (B.O.; Appendix D) addresses the effects of the proposed action on the endangered Butte County Meadowfoam (*Limnanthes floccosa ssp. californica*); threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*); endangered vernal pool tadpole shrimp (*Lepidurus packardi*); threatened vernal pool fairy shrimp (*Branchinecta lynchii*); and proposed vernal pool critical habitat. Implementation of the proposed project would not adversely affect the threatened California red-legged frog (*Rana aurora draytonii*), threatened giant garter snake (*Thanmophis gigas*), endangered Greene's Tuctoria (*Tuctoria greenei*), endangered hairy orcutt grass (*Orcuttia pilosa*), or the threatened Hoover's spurge (*Chamaesyce hooveri*). Appendix H contains a USFWS list of endangered and threatened species that may be present in or may be affected by the proposed project.

The USFWS B.O. states that the proposed project may affect Butte County Meadowfoam (BCM), vernal pool fairy shrimp, vernal pool tadpole shrimp and valley elderberry longhorn beetle (VELB). The FHWA and Caltrans have proposed avoidance, minimization, and conservation measures sufficient to offset the adverse effects of the proposed action to these species, and the B. O. concludes that the proposed action is not likely to jeopardize their continued existence. Proposed critical habitat for BCM, vernal pool tadpole shrimp and fairy shrimp would not be adversely modified or destroyed. Critical habitat for VELB does not occur in the action area of the project, and, therefore, would not be adversely modified.

Proposed avoidance, minimization and conservation measures would include:

Vernal pool fairy shrimp and vernal pool tadpole shrimp:

1. The effects to listed vernal pool crustaceans resulting from habitat modification and loss and project construction would be minimized.

2. Conservation measures for loss of vernal pool fairy shrimp and tadpole shrimp habitat due to direct and/or indirect effects would consist of both preservation and creation components to ensure "no net loss" of habitat. Mitigation measures would include the acquisition of a preservation easement and/or purchase of

credits at an established conservation bank for a total of 37.5 ha (92.66 ac) of vernal pool crustacean habitat. This easement/credit would provide a 2:1 preservation component for 11.87 ha (29.33 ac) of direct impact and 17 acres of indirect impacts. The estimated cost for this mitigation is currently being assessed.

The creation component of the 11.87 ha (29.33 ac) of direct impact would be satisfied through vernal pool creation at a site approved by the USFWS and USACOE. The estimated cost of this mitigation is $2,044,000.

Butte County Meadowfoam:

No direct impacts to Butte County Meadowfoam are anticipated with the construction of the proposed project. Indirect impacts would affect approximately 0.21 ha (0.53 ac). Mitigation would consist of a contribution at a 5:1 ratio [1.1 ha (2.7 ac)] to a multi-agency purchase of property containing an established population of BCM. Estimated cost for this mitigation is $175,000.

Valley Elderberry Longhorn Beetle:

Mitigation for direct/permanent impacts to Valley Elderberry Longhorn Beetle, "VELB" would follow the *USFWS 1999 Conservation Guidelines for the Valley Elderberry Longhorn Beetle* and the associated B. O. for avoidance, establishment, restoration, and maintenance of buffer zones. It would include transplanting shrubs and replacement planting and monitoring. For 22 shrubs impacted, 24 replacement planting basins would be required, at a total cost of approximately $36,000. In addition, transplanting costs are estimated to be $102,000.

NMFS Consultation

Consultation with NMFS was undertaken to address the effects of the proposed action on Essential Fish Habitat (EFH) for Central Valley fall/late fall-run Chinook salmon (*Onchrhynchus tshawytscha*). Under provisions of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), Section 305(B)(4)(A), NMFS has provided conservation recommendations for the implementation of the proposed project (Appendix D). As required by Section 305(B)(4)(B) of the MSFCMA, and 50 CFR 600.920(j), FHWA will comply with the recommendations. With these measures in place, the conclusion of NMFS consultation is that the proposed project would not be likely to adversely affect EFH for Chinook salmon. Mitigation for loss of 0.89 ha (2.20 ac) of salmonid habitat would include

revegetation at bridge crossings and adjacent creek banks at a ratio to ensure "no net loss" of habitat.

CDFG Consultation

Consultation with CDFG regarding effects of the proposed action resulted in the following:

Swainson's hawk

Pre-construction surveys would determine presence/absence of active nests within a 10-mile radius of the project area. Mitigation for the potential loss of 63.0 ha (155.77 ac) of Swainson's hawk foraging habitat would be covered by the upland component of preservation of vernal pool fairy and tadpole shrimp habitat, as approved by CDFG.

Butte County Meadowfoam

BCM is a State and Federal listed species. Conclusions in the USFWS B. O. and conceptual Habitat Mitigation and Monitoring Proposal (HMMP) also address CDFG's concerns regarding project impacts to this species.

Northwest Pond Turtle

Mitigation for loss of 1.87 ha (4.61 ac) of habitat would be covered under mitigation for impacts to freshwater marsh.

Chinook salmon and steelhead habitat

Construction measures such as restricting in-water work, minimizing creek channel disturbance, and maintaining fish passage would be implemented to avoid/minimize impacts to salmonids. As stated above under NMFS consultation, restoration of streamside and riparian vegetation would ensure "no net loss" of habitat.

Other species

Pre-construction surveys would be conducted to determine the presence of bats, nesting birds, and birds-of-prey. Measures such as avoiding construction during nesting periods, removing unoccupied nests outside the breeding season, and excluding nest building and roosting would be implemented as necessary to minimize impacts to these species.

S.5 Issues to be Resolved

Issues to be resolved before implementation of the proposed project are listed below. Impacts are discussed in detail in Chapter 3.

- Final project design
- Right-of-way acquisition and utility relocation
- Permits and approvals

S.6 Permits and Approvals

The following permits and/or approvals would be required prior to construction of the proposed project:

- Streambed alteration agreement (Section 1601) from the CDFG
- Clean Water Act – Section 404 individual permit from USACOE
- Section 401 certification/waiver from Regional Water Quality Control Board (RWQCB)

In addition, an Incidental Take Permit pursuant to Section 2081 of the Calif. Fish and Game Code may be required. This determination would be made after pre-construction surveys for presence/absence of State-listed species.

NEPA/404 Concurrence Process

In 1997, Caltrans and the FHWA began coordinating with the federal resource agencies, including the USFWS, USACOE, and USEPA to implement the NEPA/404 Integration Process for the proposed project. Concurrence was received for purpose and need, criteria for selecting alternatives, and range of alternatives prior to public circulation of the DEIS/R. In August 2002, Caltrans, FHWA, USEPA and USACOE identified Alternative 3 as the preferred alternative/Least Environmentally Damaging Practicable Alternative, and in November 2002 USFWS issued a non-jeopardy Biological Opinion for impacts to threatened and endangered species. A detailed Habitat Mitigation and Monitoring Proposal (HMMP) has been reviewed and approved by USEPA, USFWS, and USACOE (Appendix C).

Record of Decision / Notice of Determination

Upon certification of the Final EIR by Caltrans and approval of the Final EIS by FHWA, Caltrans would file a Notice of Determination (NOD). FHWA would prepare a Record of Decision (ROD) describing why the preferred alternative was chosen. Caltrans would prepare Findings and a Statement of Overriding Considerations for impacts considered significant under CEQA.

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Abbreviated Terms

Abbreviation	Term
AB	Aggregate base
ac	acre
AC	asphalt concrete
ACOE	US Army Corps of Engineers
ADT	Average Daily Traffic
APE	Area of Potential Effects (Cultural Resources)
BCAG	Butte County Association of Governments
BCM	Butte County Meadowfoam (special status plant)
BMP	Best Management Practices (Water Quality)
Caltrans	California Department of Transportation
CDFG	California Department of Fish & Game
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide (Air Quality)
dBA	Decibels (noise level measurement)
DEIR	Draft Environmental Impact Report (CEQA document – State)
DEIS	Draft Environmental Impact Statement (NEPA document – Federal)
DGAC	Dense grade asphalt concrete
EA	Environmental Assessment
ES	Edge of shoulder
ESA	Environmentally Sensitive Area
ESA	Endangered Species Act (federal)
ESU	Evolutionarily Significant Unit
ETW	Edge of traveled way
FEMA	Federal Emergency Management Agency
FG	Finished Grade
FHWA	Federal Highway Administration
FL	Flow line
FPPA	Farmland Protection Policy Act
ft	Foot / feet
FTIP	Federal Transportation Improvement Program
ha	Hectare
HMMP	Habitat Mitigation and Monitoring Proposal
HP	Hinge point
HPSR	Historic Property Survey Report (cultural resources)
IS/EA	Initial Study / Environmental Assessment

Km	Kilometer
KP	Kilopost
L_{eq}	Equivalent Noise level
LEDPA	Least Environmentally Damaging Practicable Alternative
LOS	Level of Service
m	Meter
mi	Mile
MTP	Metropolitan Transportation Program
MOU	Memorandum of Understanding
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NES	Natural Environment Study (Biological Resources)
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOP	Notice of Preparation
NRCS	Natural Resources Conservation Service
OG	Original Ground
OGAC	Open grade asphalt concrete
PG	Profile Grade
PG&E	Pacific Gas and Electric
PM	Postmile
ppm	Parts per million
PRC	Public Resources Code (State)
RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
R/W	Right-of-Way
RWQCB	Regional Water Quality Control Board
SACOG	Sacramento Area Council of Governments
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SR	State Route
STIP	State Transportation Improvement Plan
TDM	Travel Demand Management
TSM	Transportation System Management
USC	United States Code
USACOE	US Army Corps of Engineers
USEPA	US Environmental Protection Agency
USFWS	US Fish & Wildlife Service
UST	Underground storage tank (hazardous materials)
Var	Variable
VELB	Valley Elderberry Longhorn Beetle (special status species)

Chapter 1 Purpose of and Need for Project

1.1 Introduction

Caltrans and the FHWA propose to upgrade the 7.5 km (4.6 mi) SR 149 to a four-lane expressway and construct freeway-to-freeway interchanges at the SR 70/149 and 99/149 intersections. The project is located in Butte County, California, beginning 10.5 km (6.5 mi) north of the city of Oroville and ending 14.2 km (8.8 mi) south of the city of Chico (Figure 1-1).

In 1994, representatives from U.S. Fish & Wildlife Service (USFWS), Army Corps of Engineers (USACOE), U.S. Environmental Protection Agency (USEPA), National Marine Fisheries Service (NMFS), FHWA and Caltrans signed a formal Memorandum of Understanding (MOU) to integrate the NEPA process with procedures of the Clean Water Act, Section 404, for projects that require an Individual permit. The aim of this integration was to improve coordination and streamline review of projects. In 1997, Caltrans initiated this "NEPA/404 Process" for the proposed SR 70/149/99/191 project. Pursuant to the implementation guidelines for the NEPA/404 Concurrent Process, Caltrans and FHWA sought concurrence from signatory agencies on the project purpose and need, range of alternatives, and criteria for selection of alternatives. After several meetings and revisions to these items, written concurrence was received from USEPA, USFWS and USACOE in October of 1999 (Appendix C). The need for and purpose of the proposed project are presented in this chapter; discussion of project alternatives may be found in Chapter 2.

1.2 Need for the Proposed Action

Existing Roadway

State Route 149 is an undivided two-lane rural highway, 7.5 km (4.6 mi) in length, with 3.6 m (12 ft) lanes and 2.4 m (8 ft) outside shoulders. It is a connecting link between the four-lane SR 70 freeway north of Oroville and the four-lane SR 99 expressway south of Chico. It serves inter-regional and local commuter traffic (*Caltrans 2000*). Passing movements occur in the opposing traffic stream; therefore as traffic volumes increase, opportunities for passing decrease. Current operating

Figure 1-1. Project Location

characteristics are rated at a Level of Service (LOS) of C:

Table 1-1. Level of Service (LOS)

LOS	Description
A	Primarily free-flow operations. Vehicles are unimpeded in their ability to maneuver in the traffic stream.
B	Reasonably free-flow, free-flow speeds generally maintained. Lowest average spacing between vehicles is 330 ft.
C	Speeds at or near free-flow. Freedom to maneuver within traffic stream is noticeably restricted and lane changes require more vigilance.
D	Speeds begin to decline slightly and density begins to increase with increasing flows. Freedom to maneuver is more noticeably limited, and traffic stream has little space to absorb disruptions.
E	Operation at capacity. Operations at this level are volatile, as there are virtually no usable gaps in the traffic stream. Maneuvering within traffic stream is extremely limited.
F	Breakdown in vehicular flow. Such conditions generally exist within queues forming behind breakdown points. Number of vehicles arriving at a point is greater than the number of vehicles that can move through it.

Source: Transportation Research Board

Capacity Issues

The major traffic pattern on SR 149 is from Oroville to Chico and vice versa. This highway serves as a diagonal link between the SR 70 freeway and SR 99 expressway, and is the only remaining two-lane section of State highway along the corridor between Oroville and Chico. The 7.5 km (4.6 mi) Route 149 section limits capacity, as traffic must transition from the four-lane divided facilities of Routes 70 and 99 to the undivided two-lane SR 149 highway (Figure 1-2). Traffic projections indicate SR 149 will not accommodate future demand at the accepted route LOS C, and in fact the LOS is projected to drop to E by the year 2020. The following table presents projected traffic demand calculated for specific segments of the project:

Table 1-2. Projected Traffic Demand

Segment	Location	Average Daily Traffic (ADT) (No. of Vehicles)		% Increase from 2000 to 2020
		2000	2020	
But-149	Entire length 7.5 km (4.6 mi) between SR 70 and SR 99	18,700	47,000	150%
But-70	70/149 intersection to 70/191 intersection	7,130	14,400	100%
But-99	99/149 intersection to just south of Chico	29,300	58,500	100%

Source: Caltrans Office of Travel Forecasting & Modeling, 3/00

Figure 1-2. Route 70/149/99 Corridor

The following table presents the predicted LOS at the SR 70/149 and 99/149 intersections for the year 2020, for the No Build Alternative:

Table 1-3. LOS at SR 70/149 and 99/149 Intersections

Intersection	Year 2020 LOS, (No Build)
SR 70/149	F
SR 99/149	F

Source: Caltrans Design, 11/01

Safety Issues

Safety concerns exist throughout the SR 70/149/99 corridor due to at-grade intersections and driveways. SR 70 south of SR 149 is a four-lane freeway, and SR 99 north of SR 149 is a four-lane expressway. Vehicles entering SR 149 from these two facilities often encounter stopped traffic as vehicles wait for a break in through traffic to turn onto Route 149, a local road, or a driveway. The SR 70/149 intersection currently has accident rates well above the statewide average:

Table 1-4. Accident Rates

Intersection	3-Year Period	Total Accidents		Fatalities		Total Injuries (includes fatalities)	
		No.	Comparison to statewide avg. *	No.	Comparison to statewide avg.*	No.	Comparison to statewide avg.*
But 70/149	1/1/99 through 1/1/02	28	**6.3 times higher**	2	**25 times higher**	8	**4 times higher**
But-149	1/1/99 through 1/1/02	44	1.2 times higher	3	3.3 times higher	21	1.1 times higher
But 99/149	1/1/99 through 1/1/02	8	.5 % lower	0	--	4	1.1 times higher

** compared to similar facilities* *Source: Caltrans Design, 11/02*

The following are accident type and number of each for the SR 70/149 intersection for the three-year period, January 1, 1999 to January 1, 2002:

- Broadside: 13
- Hit object: 6
- Rear end: 3
- Sideswipe: 2
- Overturn: 3
- Other: 1

The following are accident type and number of each for the SR 99/149 intersection for January 1, 1999 to January 1, 2002:

- Broadside: 5
- Hit object: 1
- Rear end: 1
- Overturn: 1

The following are accident type and number of each for the 4.6 mi SR 149 for the same period:

- Broadside: 19
- Hit object: 6
- Rear end: 8
- Sideswipe: 5
- Overturn: 3
- Head on: 1
- Other: 2

The majority of accidents at the two intersections and along SR 149 are broadside collisions, resulting from vehicles turning left in front of oncoming traffic.

System Linkage

In 1988 the California Transportation Commission (CTC) requested a corridor study to address transportation needs between Sacramento and Chico. The State Routes 70 and 99 Corridor Study sponsored by Butte County Association of Governments (BCAG) and Sacramento Area Council of Governments (SACOG) was completed in 1990 and identified SR 70 with a connection to SR 149 as the preferred route for upgrades to complete an inter-regional transportation system from Sacramento to Chico.

State Route 149 is an interconnecting link between the urban areas of Chico and Oroville. It is a focus route (part of the Inter-regional Road System identified for investment of State Transportation funds), and a cross-link to lifeline Routes 99 and 70. The 1990 Corridor Study identified SR 70 as the preferred route for upgrades to complete an inter-regional transportation facility from Sacramento to Chico. A gap-closure project along SR 149 is an integral part of this freeway/expressway system. Chico is one of the last remaining urbanized areas in the state that is not directly connected by a continuous four-lane highway system, and is not connected to the State freeway system.

Relationship With Other Modes of Transportation

The following public transit options are available along SR 149:

- Public transit service is provided by Butte County Transit, with eighteen round trips provided daily between Chico and Oroville via SR 149.
- Greyhound bus Lines operates four round-trip buses per day between Sacramento and Chico via SR 149, with a capacity of 47-54 passengers per vehicle.
- Amtrak Motor Coach operates three round-trip buses per day between Sacramento and Chico via SR 149, with a capacity of 44 passengers per vehicle.
- Bicycle and pedestrian access is currently allowed along Routes 149, 99 and 70.

Roadway Maintenance

Existing SR 149 experiences maintenance problems near the junction with SR 70 along the Cottonwood Creek drainage. This area is prone to ponding of water within State right-of-way due to beaver dams blocking the drainage ditch north of the roadway. This has at times been a safety concern, as the water has come within 6 ft of the shoulder. The proposed project would reduce the need for maintenance and improve safety in this area by providing a drainage system to eliminate water ponding within the right-of-way. This drainage system would also accommodate a standard clear recovery zone, which would improve safety.

Structural footings under the Clear Creek Bridge (No. 12-0073) had become exposed due to long-term degradation and scour from water in the channel. This was corrected with a separate project that was completed during the summer of 2002.

1.3 Purpose of the Proposed Project

The objectives of the proposed project are to:

- Improve traffic safety
- Maintain LOS C through the 20-year design period for local commuter and inter-regional traffic by reducing congestion and delays
- Provide a continuous four-lane inter-regional transportation system between Oroville and Chico.

1.4 Project Background

When SR 149 was reconstructed in 1975, it was designed to provide a four-lane expressway with a 70 ft (21.5 m) median, and ultimately a freeway. The 1975 project constructed only two lanes, but purchased right-of-way sufficient to build two additional lanes south of the existing two lanes. Following the 1990 Corridor Study, Caltrans District 3 completed a Project Study Report for the SR 149 improvements in June of 1991, and the project became part of the 1992 District 3 System Management Plan as a gap-closure candidate. In 1992 Butte County included the project in their Regional Transportation Improvement Program (RTIP) and submitted the project to the CTC for funding. In April 1992, the project was funded for construction and added to the Federal Transportation Improvement Program (TIP).

In 1995, in response to requirements of Intermodal Surface Transportation Efficiency Act (ISTEA), the SR 149 improvements were included in a Major Investment Study (MIS), (*BCAG 1995*) that reaffirmed the conclusion of the 1990 Corridor Study, and recommended the project be constructed. Participants from the USACOE and Bureau of Land management (BLM) were invited to participate in this effort and were sent draft documents to review. No comments were received.

In April of 1997, Caltrans and FHWA presented three SR 149 widening alternatives at a meeting which included representatives from USACOE, USFWS, CDFG and the USEPA, in accordance with the NEPA/ 404 MOU for projects that require approval under NEPA, and require an Individual Section 404 permit under the Clean Water Act. The resource agencies present gave verbal agreement for the project purpose and need, and the alternatives presented, but no formal, written concurrence was obtained at that time. In March of 1999, resource agencies expressed concern that the project

purpose was not specific enough, and the range of alternatives was not adequate. Caltrans and FHWA revised these items, and after two NEPA/404 Dispute Resolution meetings, written concurrence was received in October of 1999 from USEPA, USFWS and USACOE for the project purpose and need, range of alternatives and criteria for selection of alternatives (Appendix C). In March of 2001, these resource agencies, along with the NMFS were also informed of a design change that was made to avoid impacts to a historic district (Appendix A).

A Draft Initial Study/Environmental Assessment (Draft IS/EA) was circulated to the public May 15 to June 15, 2001, and a public workshop was held on May 30, 2001. Many individuals expressed support for the proposed project, but a few expressed concerns about impacts to Butte County Meadowfoam. Several resource agencies commented that they felt the project impacts would be substantial, and an EIS/EIR was warranted. After consideration of public and agency comments, FHWA and Caltrans decided to prepare a DEIS/DEIR, and a Notice of Intent and Notice of Preparation stating this decision were sent to federal, regional, State and local Responsible/Cooperating Agencies.

1.5 Project Description

The proposed project would upgrade SR 149 in Butte County to a four-lane expressway, and construct freeway-to-freeway interchanges at the existing SR 70/149 and SR 99/149 intersections (Figure 1-1). Work would include:

- construction of two additional 3.6 m (12 ft) lanes, a 3.0 m (10 ft) outside shoulder, a 1.5 m (5 ft) median shoulder and an 18.6 m to 22 m (60 ft to 72 ft) median for the full length of SR 149 (7.5 km, 4.6 mi),
- realignment of SR 70 between SRs 149 and 191,
- construction of freeway-to-freeway interchanges at the existing SR 70/149 and 99/149 intersections,
- reconstruction of the SR 70/191 intersection,
- construction of driveway access roads,
- rehabilitation of the existing SR 149 roadway,

- construction of county roads including a portion of Shippee Road, Table Mountain Blvd. and the Book Farm Road,

- construction of a drainage system to eliminate ponding within the right-of-way on the north side of SR 149 near the junction with SR 70.

The proposed project would require the acquisition of approximately 118 ha (292 ac) of land. Right-of-way was purchased in 1975 for two additional lanes on the south side of SR 149. This purchase did not include consideration of other widening alternatives, or all areas needed for future interchanges, driveway access roads, or realignment of SR 70 north of SR 149. Three alternatives were considered for widening SR 149. Other project features (interchanges, driveway access roads, improvements to Shippee Road/SR 149 and SR 70/191 intersections, realignment of SR 70) would be the same for each alternative. The estimated project cost varies from $80 to $90 million, depending on the alternative chosen. A complete description of alternatives is presented in Chapter 2.

Chapter 2 Alternatives

This chapter discusses the alternatives under consideration for constructing the proposed project, alternatives that have been eliminated, and the No Build Alternative. The first subsection presents the process used to select or eliminate alternatives.

2.1 Alternative Development Process

On December 27, 1993, Caltrans signed an interagency Memorandum of Understanding (MOU) committing to integrating NEPA and Section 404 of the Clean Water Act in transportation planning, programming and implementation stages for projects requiring an individual permit under Section 404. This integration process is referred to as the NEPA/404 Process, or the NEPA/404 MOU. In 1997, Caltrans and FHWA began coordination with federal resource agencies under this process to obtain agreement on the purpose and need for the proposed project, the range of alternatives to be studied, and the criteria for selecting alternatives. Written concurrence for these items was received from USACOE and USFWS on 9/3/99 and from USEPA on 10/8/99 (Appendix C).

As part of the NEPA/404 process, an Alternatives Analysis was completed in May 2000, updated in December 2001, and finalized in November 2002 by the Caltrans District 3 Environmental Branch (Appendix E). Sixteen roadway alternatives, two interchange options and three options for each of four driveway access roads were examined in the analysis. Alternatives and design options that were eliminated are addressed in section 2.1.2, "Alternatives/Design Options Considered and Eliminated." For the proposed project, three SR 149 widening alternatives, one interchange design and four driveway access roads are being presented.

2.1.1 Criteria for Alternative Selection

During the NEPA/404 process, it was agreed that project alternatives to be evaluated must meet certain criteria to ensure that they would be "reasonable" (NEPA) and "practicable" (Section 404). The following is a list of the criteria that received concurrence from the NEPA/404 process participants:

- Correct existing safety issues at intersections and driveways

- Maintain minimum Level of Service C throughout the project area through the year 2020
- Bring facility continuity to the route by connecting the existing four-lane freeway section to the south with the existing four-lane expressway/freeway section to the north
- Meet long-range inter-regional transportation planning goals by facilitating commuter, commercial and recreation travel
- Minimize impacts to wetlands and other regulated waters and achieve no net loss of wetlands
- Minimize impacts to listed species and other sensitive biological resources
- Minimize impacts to agricultural lands
- Minimize impacts to historic and archaeologically significant sites
- Minimize displacement of existing residences and businesses
- Minimize out-of-direction travel
- Obtain access control
- Maintain reasonable access to existing residences and businesses
- Minimize construction and roadway operation costs.

2.1.2 Alternatives / Design Options Considered and Eliminated

The Alternatives Analysis provides a comprehensive study of numerous alternatives that were considered for addressing the need for highway improvements along the SR 70/149/99 corridor. The following alternatives were evaluated in that analysis and eliminated from consideration based on impacts to resources, feasibility, ability to meet the purpose and need, and cost.

Improvements to Existing Intersections

This alternative would implement safety improvements at the existing 70/149 and 99/149 intersections, with SR 149 remaining a two-lane highway. Numerous

improvements have already occurred at these locations including turn pockets, improved sight distance and lighting, rumble strips, and flashing warning lights. Since no additional improvements are available short of realigning the roadway, this alternative was eliminated from consideration.

Non-Highway Alternatives

Inter-city passenger rail and bus service, as well as Transportation System and Travel Demand Management (TSM/TDM) strategies were examined for their ability to meet the project purpose. (TSM/TDM strategies include improvements to transit, ridesharing, and bicycle and pedestrian services that increase the efficiency of existing facilities.)

In 1996, BCAG prepared a Final Draft of Interim Findings for a Northern Sacramento Valley Inter-city Passenger Rail Study (*BCAG 1996*). This study examined the feasibility of providing passenger rail service from either Sacramento or Roseville north to Marysville/Yuba City, Chico, and Redding. The Findings indicated that the start-up, operation and maintenance costs, funding sources and ridership forecasts were limiting factors that would make this transportation option infeasible in the near future. The decision to not explore this alternative further was unanimously made by Shasta, Tehama, Sutter, Sacramento and Butte Counties.

Butte County Transit currently provides daily bus service between Oroville and Chico. This form of transportation addresses the needs of some local commuters, but does not address inter-regional traffic, the movement of goods and services, or the need for safety improvements at the SR 70/149 and 99/149 intersections. Greyhound Bus Lines and Amtrak Motor Coach currently provide transit service from Sacramento to Chico (and beyond). As ridership on these bus lines is mostly inter-regional, improvements to this service would not adequately address local traffic, safety improvements or the movement of goods and services.

Park and Ride facilities currently exist in Oroville and Chico, and these are used on a regular basis. Improvement/expansion of these facilities would not address safety issues, movement of goods and services or inter-regional traffic in the project area.

There currently are no bicycle facilities/designations along Routes 70, 149, and 99, but cyclists are allowed to use the roadway shoulder.

As stated in the SR 70/99 Corridor MIS, these public transportation improvements can only be expected to address from 2% to 5% of projected travel demand. They would not facilitate movement of goods and services, and would not correct safety concerns. For these reasons, they were not recommended in the MIS. These non-highway alternatives do not meet the purpose and need for the proposed project, and they have been eliminated from consideration.

Close all Access and Close Access Except at Shippee Road Intersection

During NEPA/404 coordination, the USACOE concurred with the range of alternatives to be studied, on the condition that Caltrans and FHWA include an alternative that would eliminate all access to the state routes. The goal of this request was to minimize potential for growth in the corridor. Caltrans examined two alternatives: one with all access points in the project limits closed, and one with all access closed with the exception of an intersection at Shippee Road. These would require the purchase of property adjacent to the project (Figure 2-1). Alternative 3, the Avoid Butte County Meadowfoam alignment, was used for evaluating the impacts of closing access.

The purchase of businesses and right-of-way, and payment of relocation benefits necessary to close access throughout the project area would add approximately $30 to $65 million to the cost of the project. This added cost would be considerable, given that the estimated range of project cost, depending on alternative chosen, is $80 - $90 million. In addition, the interchanges proposed for the alternatives along SR 149 are already designed for access control. The excessive cost for purchasing property adjacent to the project makes these two alternatives unreasonable, therefore they have been eliminated from consideration.

Construct Interchanges Only Alternative

This alternative would construct freeway-to-freeway interchanges at the 70/149 and 99/149 intersections, but would leave SR 149 a two-lane highway. This alternative would include improvements to the Shippee Road/SR 149 intersection, construction of driveway access roads, realignment of SR 70 north of SR 149, realignment of Table Mountain Blvd, and reconstruction of the 70/191 intersection. The estimated project cost is $71.7 million

Figure 2-1. Close Access Alternative

This alternative was analyzed in detail in the Alternatives Analysis as requested by the USFWS through NEPA/404 integration. This alternative would not meet the full project purpose and need: concept LOS C for the year 2020 could not be achieved with a two-lane highway, and this alternative would not provide a consistent inter-regional transportation system between Oroville and Chico. In addition, it is not reasonable from an engineering/design standpoint to permanently connect freeway-to-freeway interchanges to a two-lane highway. Safety is lessened with a two-lane highway as compared to a four-lane expressway with median separating opposing traffic. For these reasons, this alternative has been eliminated from further consideration.

Freeway Gap-Closure – Alternate East/West Alignments (4)

Four alternatives were examined to connect SR 70 and SR 99 along east/west alignments other than along SR 149 (Figure 2-2). These alternatives include:

- Freeway/expressway from SR 70 along SR 191 and Durham/Pentz Road to SR 99
- Freeway/expressway from SR 70 along Cottonwood Road to SR 99
- Freeway/expressway from SR 70 along Nelson Avenue to SR 99
- Freeway/expressway from SR 70 along SR 162 to SR 99

These alternatives would not correct safety concerns at the SR 70/149 and 99/149 intersections, and would have greater overall costs, out of direction travel, and greater impacts to wetlands than alternatives along SR 149. In addition, improvements would still be necessary at the SR 70/149 intersection, resulting in additional impacts to sensitive resources. For these reasons, these alternatives have been eliminated from consideration.

Freeway Gap-Closure – Alternate Diagonal Alignment (2)

Two other concepts were considered for connecting SR 70 and SR 99 along a diagonal alignment other than along SR 149. This included:

- Freeway/expressway along diagonal route north of SR 149;
- Freeway/expressway along diagonal route south of SR 149.

Figure 2-2. Preliminary Alternatives

For the same reasons stated for the alternate east/west alignments above, these concepts have been eliminated from consideration.

Wetland Avoidance Alternative

Since the project study area contains numerous wetland resources, any action that improves the roadway would impact wetlands. The only "Wetland Avoidance Alternative" would be a No Build alternative.

Design Options

The following design options considered and eliminated are shown in Figures 2-3.

Trumpet Interchange

This freeway-to-freeway interchange design requires longer driving distances for movements on the structures, requires more right-of-way, and has greater environmental impacts than the direct-connect interchange. For these reasons, it has been eliminated from consideration.

Shippee Road Interchange

The Freeway Agreement for SR 149 includes discussion of a future interchange at Shippee Road. For the proposed project, Caltrans Design staff studied traffic volumes at the intersection, and determined that an interchange would not be warranted based on benefits versus cost.

Warren-Brown Access Road – Connect driveway to Table Mountain Overcrossing

This design option would provide access to the Warren and Brown parcels [Assessor Parcel Numbers (APNs) 041-210-052 and 041-200-041] by connecting the existing driveway to the Table Mountain crossing over SR 70 to the south. This option would have greater wetland impacts than the overcrossing to Openshaw Road, and thus has been eliminated from consideration.

Table Mountain Blvd. Access

Caltrans studied an option that would use existing SR 70 for the new northbound lanes, construct southbound lanes to the west, and realign Table Mt. Blvd along the east side of SR 70 to connect at the SR 70/191 intersection. This option was eliminated as the new Table Mt. Blvd. would be a longitudinal encroachment into the

Figure 2-3. Design Options Considered and Eliminated

Berkeley Olive Association Historic District, which has been found eligible for the National Register of Historic Places.

Another design option would relocate Table Mountain Blvd. to the west side of SR 70, avoiding impacts to the Berkeley Olive Association Historic District on the east side of SR 70. This would involve constructing structures over SR 70 for Table Mt Blvd. and Coal Canyon Road, relocation of three or four Western Area Power Administration high voltage towers, purchase of several parcels (approx. 60 ac) on the east side of SR 70 that would have no access, removal of the Berkeley Olive Association Work Camp Site, and additional wetland and other biological resource impacts. After considering the above items as well as the additional cost (approximately $4.6 million), this alternative was eliminated.

Caltrans also investigated an alternative that would construct the Table Mountain Blvd. extension completely outside the eastern boundary of the Berkeley Olive Association Historic District. This alternative would require approx. two miles of additional roadway and new structures, and would result in additional environmental impacts and considerable added cost. For these reasons, it too has been eliminated from further study.

Book/Guidici Property Access South

This design option would construct a driveway access road on the west side of SR 99 from the Book and Guidici properties (APNs 040-057-003 and 040-130-011) to south of the SR 99/149 interchange. Since this option would result in greater wetland impacts than the access road to the north, it has been eliminated from further consideration.

Schlaf Property Access North (Fish Farm)

This option would construct an access road on the east side of SR 99 from the Schlaf property (APNs 040-130-040) north to the Durham-Pentz road cul-de-sac. As this option could have impacts to state and federally listed plant species (i.e., Green's tuctoria and Hoover's spurge), it has been eliminated from further consideration.

2.1.3 Alternatives Selected for Detailed Study

Three build alternatives were considered to address the need for improvements along the SR 70/149/99 corridor. These alternatives were a result of the alternatives analysis process outlined in the previous section, and were selected based on several

factors including benefits, capital cost, feasibility, impacts and ability to address the stated project purpose and need.

The No Build Alternative is presented to allow the reader of this document to compare the effects of the build alternatives with a future scenario where no expressway or interchanges are present along SR 149.

2.2 Project Alternatives

The three alternatives that were considered for widening SR 149 to a four-lane expressway are presented below. Other project features (interchanges, driveway access roads) are common to all three alternatives and are presented in Section 2.2.4. Alternatives are shown in Figure 2-4 through Figure 2-6.

2.2.1 Alternative 1 – Widen to the South

Description

This alternative would upgrade SR 149 to a four-lane expressway by adding two lanes on the south side of the existing roadway (Figure 2-4). Widening would begin at the proposed SR 70/149 interchange and end at the proposed SR 99/149 interchange, a distance of 7.5 km (4.6 mi). Estimated cost of this alternative including other project features is $83 million, and 118.2 ha (292.1 ac) of new right-of-way would be required.

Roadway

Alternative 1 would include the following roadway construction:

- Two 3.6 m (12 ft) lanes with an 18.6 m (60 ft) or 22 m (72 ft) median; 1.5 m (5 ft) median shoulder and 3.0 m (10 ft) outside shoulder,
- realignment of SR 70 between SRs 149 and 191,
- reconstruction of the SR 70/191 intersection,
- construction of driveway access roads,
- rehabilitation of the existing SR 149 roadway,

Figure 2-4. Alternative 1 – Widen to the South

- construction of county roads including a portion of Shippee Road, Table Mountain Blvd. and the Book Farm road,
- construction of a drainage system to eliminate ponding within the right-of-way on the north side of SR 149 near the junction with SR 70.

Structures

Alternative 1 would require the following structures:

- freeway-to-freeway interchanges (direct connector) at the SR 70/149 and 99/149 intersections,
- two-lane bridges with shoulders over Dry Creek, Clear Creek, Little Dry Creek,
- four-lane bridge with shoulders on new SR 70 alignment at Gold Run Creek.

This alternative would also require a one-lane crossing over SR 149 to Openshaw Road for access to the Warren and Brown parcels (APNs 041-210-052, 041-200-041) south of SR 149. This over-crossing would function as a private driveway, with a locked gate provided at the north end. Caltrans would maintain those portions of the structure within State right-of-way, and there are no plans to widen the structure in the future.

2.2.2 Alternative 2 – Widen to the North

Description

Alternative 2 (Figure 2-5) would add two lanes on the north side of existing SR 149 between the proposed SR 70/149 and 99/149 interchanges, covering a distance of 7.5 km (4.6 mi). Estimated cost for this alternative including other project features is $87 million, and 148.1 ha (365.9 ac) of new right-of-way would be required. Alternative 2 would include the same 7 roadway construction items and 4 structures listed under Alternative 1.

Figure 2-5. Alternative 2 – Widen to the North

2.2.3 Alternative 3 – Avoid Butte County Meadowfoam

Description

Alternative 3 (Figure 2-6) would add two lanes on the north side of SR 149 through an area of Butte County Meadowfoam (*Limnanthes floccosa californica*) from the proposed SR 70/149 interchange to KP 4.1 (PM 2.6), and then widen to the south side from KP 4.1 (PM 2.6) to the proposed SR 99/149 interchange for a total length of 7.5 km (4.6 mi). Estimated cost for this alternative including other project features is $87 million, and 163.8 ha (404.7 ac) of new right-of-way would be required.

Alternative 3 would include the same 7 roadway construction items and 4 structures listed under Alternative 1.

2.2.4 Common Features of Build Alternatives

Typical cross-sections for the build alternatives are shown in Figures 2-7 A & B. The following features are part of the overall project, and would be included with the selected SR 149 widening alternative. They are shown in Figure 2-4 through Figure 2-6.

Direct Connector Interchange – 70/149 and 99/149 Intersections

This freeway-to-freeway interchange has high design standards, with two of the route-to-route movements on separate structures. It provides the shortest driving distances for movements on the structures, requires the least amount of right-of-way, and produces the fewest environmental impacts. A standard design exception has been approved for the northbound (NB) SR 149 to southbound (SB) SR 99 ramp, and the SB Route 149 to eastbound (EB) Route 70 ramp. The exception would allow one-lane ramps at these locations instead of the standard two-lane ramps. This exception was requested to keep the project within the budgeted scope and cost, as it would free up additional funds to be used to close access points not addressed in the original project scoping document. Projected traffic volumes do not warrant two lanes, and the benefits would exceed the disadvantages of the proposed design exception. These interchanges would be access controlled and would therefore not allow access to adjacent land.

Figure 2-6. Alternative 3 – Avoid Butte County Meadowfoam

Figure 2-7. Typical Cross-Sections

Warren/Brown Over-crossing

This structure would provide a one-lane crossing over SR 149 to Openshaw Road to maintain access to the driveways of the Warren (APN 041-210-052) and Brown (APN 041-200-041) parcels, which would be impacted by the ramps of the SR 70/149 interchange. This over-crossing would function as a private driveway, with no plans for future widening.

Table Mountain Blvd. Access

This project feature would consist of connecting Table Mt. Blvd north of SR 149 to existing SR 70, which would then become a frontage road for the new SR 70 alignment to the west. This frontage road would connect to SR 70 at the realigned SR 191 intersection. This would avoid conflict between the existing Table Mt. Blvd alignment and the proposed SR 70/149 interchange ramps, would improve the operational characteristics of the SR 70/191 intersection, and would maintain access for the parcels on the east side of existing SR 70.

Realignment of SR 70

SR 70 would be realigned approximately 110 m (360 ft) at the widest offset, west of its current location, from SR 149 to SR 191. This would avoid impacts to the Berkeley Olive Association Historic District.

Reconstruction of SR 70/191/Table Mt. Blvd. Intersection

The SR 70/191 intersection would be relocated approximately 50 m east of its current location, and would become a 4-way intersection comprised of north- and southbound SR 70, SR 191 and the realigned Table Mt. Blvd (previous SR 70). This configuration would improve the operational characteristics of the intersection, which would reduce accidents.

Realignment of Shippee Road

Near its intersection with SR 149, Shippee Road would be realigned to the east. This is necessary to allow adequate distance between the intersection and the SR 99/149 interchange. The County would abandon the existing roadway.

Book/Guidici Property Access – North

This project feature would consist of a frontage road on the west side of SR 99 north of the 99/149 interchange. This would maintain access to the Book (APN 040-057-003), Guidici (APN 040-130-011) and Dry Creek Ranch (APN 040-057-004) parcels that would be impacted by the SR 99/149 interchange ramps. This road would continue north to the intersection of Durham/Dayton Highway and Oroville/Chico Highway.

Schlaf Property Access South (Fish Farm)

This project feature would consist of a driveway access road on the east side of SR 99 from just north of the SR 99/149 interchange, southeast to Openshaw Road. This would maintain access to the Schlaf parcel on the east side of SR 149 (APN 040-130-040) which would be impacted by the SR 99/149 interchange ramps.

Schlaf Property Access South (Animal Farm)

This project feature would consist of a driveway access road on the east side of SR 99 from just south of the SR 99/149 interchange to approximately 500 m north of Dry Creek Bridge on SR 99. This would maintain access to the Schlaf parcel on the east side of SR 99 (APN 041-190-027), which would be impacted by the SR 99/149 interchange ramps.

2.2.5 No Build Alternative

Under the No Build Alternative, conditions along the SR 70/149/99 corridor would remain as they currently exist. Route 149 would remain a two-lane highway, and the SR 70/149 and SR 99/149 intersections would remain unchanged. The No Build Alternative would not produce immediate environmental impacts; consequently, no mitigation would be required. However, several roadway maintenance and safety items that would have been corrected with the proposed project would still need to be addressed as separate projects in the near future. This would include rehabilitation of the SR 149 roadway, correction of ponding in the highway right-of-way near the SR 70/149 intersection (see pg. 1-7), scour repair at the Clear Creek Bridge on SR 149, and improvements to the SR 70/191 intersection.

Traffic projections indicate SR 149 would not accommodate traffic demand at the accepted route LOS C in the year 2020, as shown in Table 1-1. The No Build Alternative would not correct existing safety problems at the SR 70/149 and 99/149

intersections, and accident rates at these two locations would likely increase as traffic demand increases.

Section 1.2 presented the LOS, capacity, safety, maintenance and highway system linkage issues (including inter-regional travel) that warrant consideration of the proposed project. The No Build Alternative would not address these needs, and would not meet the objectives of the project.

2.3 Identification of Preferred Alternative

Alternative 3, Avoid Butte County Meadowfoam, has been identified as the preferred alternative under NEPA, and as the Least Environmentally Damaging Practicable Alternative (LEDPA) under Section 404(b)(1) of the Clean Water Act, for the SR 70/149/99/191 Highway Improvement Project. The U.S. Environmental Protection Agency (USEPA) and the U.S. Army Corps of Engineers (USACOE) have concurred with these determinations as required by the NEPA/404 Integration Memorandum (see Appendix C).

Alternative 3 was identified as the LEDPA/preferred alternative as it would avoid direct impacts to Butte County Meadowfoam, and would result in the fewest impacts to aquatic resources and special status species. This alternative would conform to the American Disabilities Act (ADA) of 1990, as appropriate.